

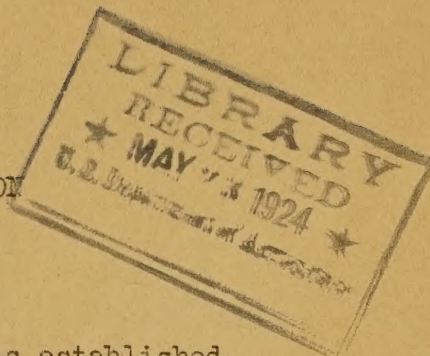
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HAWAII AGRICULTURAL EXPERIMENT STATION

Honolulu, Hawaii.



The Hawaii Agricultural Experiment Station was established under an Act of Congress approved May 25, 1900. This legislation was largely the result of representations made to the Secretary of Agriculture by Hon. Sanford B. Dole, then Governor of Hawaii. A preliminary survey of the situation was made by Dr. W. C. Stubbs, who was for many years in charge of the Louisiana Experiment Stations, and acting on his recommendations the station was located on its present site, and a policy looking toward the diversification of the agriculture of the islands was adopted. The tract of land occupied by the station embraces three parcels, one ceded to the United States on June 9, 1901 by Acting Governor H. E. Cooper, another that belongs to the Marine Hospital Service, and a third, a tract reserved for a naval hospital site and later transferred by the Navy Department to the U. S. Department of Agriculture for use as an agricultural experiment station. For a number of years after the establishment of the station active co-operation was maintained between it and the Territorial authorities and for several years financial aid in some of its projects was given by the Territorial legislature. At the present time it is wholly supported by appropriations made by Congress to the U. S. Department of Agriculture.

The first director of the station was J. G. Smith, who began its organization April 5, 1901. He was succeeded by E. V. Wilcox on July 1, 1908, who in turn was succeeded by J. M. Westgate on January 1, 1915. There have been about fifty investigators and collaborators connected in official capacities with the station since its organization and several hundred projects have been given attention. There are at present (1923) about twenty major projects under investigation. These represent problems in tropical agriculture with special reference to local conditions. The fundamental idea underlying its investigations has been the diversification of agriculture and the development of agricultural industries that might make Hawaii less dependent upon the mainland for many of its necessities.

SOME WORTH-WHILE ACCOMPLISHMENTS OF THE HAWAII AGRICULTURAL

EXPERIMENT STATION, 1901-1923.

The purpose of bringing together these different Station accomplishments is to give visitors and others a general idea of the work of the Station whether completed or in progress. The Station Librarian or one of the clerks will be pleased to provide access to the specific bulletins and annual reports referred to under the particular items. It is hoped that this will economize the time of both the visitor and the station workers by limiting the points for actual discussion to those which are not fully covered in the published reports but which are of special interest and which can usually be attended to in an interview with the station worker specializing in the particular line.

Unclassified List of Accomplishments.

(1) Made an exhaustive study of the production and commercial utilization of dairy products. (Press Bul. 31; Special Bul. Production and Inspection of Milk).

(2) Has emphasized for 22 years the desirability of a greater diversification of the agricultural industries of the Hawaiian Islands, especially along food crop production lines. (Ann. Rpts. 1901-1922).

(3) Has developed one of the best working agricultural libraries in the Hawaiian Islands, said library containing a practically complete set of all State experiment station publications fully indexed. Has prepared a complete index to all publications of the Hawaii Agricultural Experiment Station from 1901 to 1912 inclusive, and has under way the preparation of an index to publications from 1913 to 1922 inclusive.

(4) Has prepared a digest in English of the important agricultural articles in the periodicals on file in the foreign section of the Station Library.

(5) Prepared a 27-page illustrated report on the edible seaweeds of Hawaii. (Ann. Rpt. 1906).

(6) Has made a study of the possibilities of the following: Growing plantation rubber under Hawaiian conditions (Press Bul. 44); cold storage for tropical fruits (Press Bul. 47); soil and cultural requirements of cotton (Press Buls. 24, 32, 34; Ann. Rpts. 1908, 1909, 1910, 1911).

AGRONOMY ACCOMPLISHMENTS.

(Hawaii Agricultural Experiment Station, Honolulu, T.H.)

(7) Inaugurated poultry investigations in Hawaii in 1901 and published bulletin entitled "Chickens and Their Diseases in Hawaii." (Sta. Bul. No. 1 (out of print), Press Bul. No. 46).

(8) Worked out the life history of the eyeworm of chickens and developed practical means for its control (Press Bulletin No. 43).

(9) Advocated in 1901 the extensive use of cane tops for live stock other than the horses and mules owned by plantations, and demonstrated its value as silage in 1914. (Ann. Rpt. 1915).

(10) Promoted the use of Uba cane as a forage crop, especially useful to dairy farmers and distributed thousands of cuttings annually (18,357 in 1921 and 1922). (Ann. Rpts. 1916-1921).

(11) Investigated the subject of silos, silage, and silage crops with special reference to Hawaiian conditions. (Press Bul. 40).

(12) Investigated the problems in connection with the production of peanuts under Hawaiian conditions. (Press Bul. 28).

(13) Determined the really wonderful possibilities of the pigeon pea under Hawaiian conditions as green manure, soiling crop, pasture crop, hay crop, seed crop, wind break, and as a constituent (when ground) of home-grown concentrated feed for dairy and work animals. (Sta. Bul. 46).

(14) Distributed in 1920 enough pedigreed pigeon pea seed to responsible growers to plant 4,000 acres of this valuable crop.

(15) Investigated the corn production problems in Hawaii and developed the New Era Yellow Dent corn yielding as high as 100 bushels of shelled corn per acre. (Press Bul. 42, Ann. Rpts. 1917, 1918, 1919).

(16) Created and developed by hybridization and selection numerous varieties of sweet potatoes which have been included in a variety test to determine the best varieties for Hawaiian conditions. Cultural and fertilizer tests have been carried out on widely separated portions of the Island of Oahu. (Sta. Bul. 50 Ann. Rpts. 1921, 1922).

(17) Inaugurated in 1906 the first scientific rice investigations in Hawaii concerning culture, breeding, fertilizing and suitable rotations, introducing for this work 10 varieties of rice from the Orient. (Ann. Rpts. 1907-1911; Press Bul. 19).

(18) Conducted extensive fertilizer and cultural experiments with pineapples and developed two methods of maintaining the productivity of pineapple lands by the use of green manures, especially the pigeon pea, (1) in short rotation, (2) in long rotations under stock farm conditions.

(19) Developed a simple but effective home-made plank drag for use on Hawaiian farmsteads. (Press Bul. 49).

(20) Conducted experiments in dynamiting soils to make them more pervious to roots of plant crops and trees. (Ann. Rpt. 1912, Press Bul. 38).

(21) Established substation in 1916 at Castner, Oahu, and operated same for four years to determine the possibility of the Army growing its own forage for its mules and cavalry horses. (Ann. Rpts. 1916, 1917, 1918, 1919).

(22) Imported pair of registered Toggenburg milking goats, the buck, Gretel's Son, No. 1554, being half-brother to the milk goat breaking the world's record for milk production, 2941 pounds in 1917. (Ann. Rpts. 1921, 1922).

(23) Investigated local swine production problems and prepared Station Bulletin on same. (Sta. Bul. 48).

(24) Developed many concentrated feed mixtures composed wholly or in part of Island-grown concentrates for various classes of local livestock. (Ann. Rpts. 1918-1920).

(25) Introduced Sudan grass, an excellent forage crop for dairy cows. (Ann. Rpts. 1913, 1914).

(26) Introduced the Napier grass in 1916 which has proved to be the best general purpose grass ever introduced in the Hawaiian Islands, 63,408 cuttings distributed in 1921, 1922.

(27) Conducted experiments in range improvement showing the value of Paspalum dilatatum for Island range conditions. (Ann. Rpt. 1912).

(28) Conducted numerous experiments with over 100 species and varieties of grasses and forage plants to determine their usefulness and adaptability to Hawaiian conditions. (Sta. Bul. 36).

(29) Distributed 250 pounds of grass and other forage crop seeds in 1906 to 50 members of the Hawaiian Stock Breeders' Association.

(30) In 1919 distributed 34,529 cuttings of cassava, 3,324 Uba cane cuttings, 1,412 Napier grass cuttings, 12,771 sweet potato cuttings, 45,058 edible canna tubers.

(31) Introduced 22 varieties of cassava and conducted varietal tests to determine those best adapted to Hawaiian soils, and in 1921, 1922, furnished 19,018 cuttings to school and home gardens, homesteaders and farmers. (Ann. Rpts. 1920, 1921).

(32) Developed cowpea No. 33, which is suitable for green manuring or as a soil crop.

(33) Investigated the subject of taro production and issued special bulletin on the subject.

(34) Made experimental plantings in 1915 with edible canna which crop has proved to be a most promising crop for starch production under Hawaiian conditions, 7,198 tubers having been distributed in 1921, 1922. (Ann. Rpt. 1917).

(35) Developed practical systems of inter-cropping: pigeon peas with Indian corn; corn with peanuts, soy beans, cowpeas or velvet beans; sweet potatoes with corn; Uba cane or elephant grass with pigeon peas for permanent pasturage.

(36) Demonstrated the value of subsoiling as an intertillage method for pineapples.

(37) Demonstrated the high feeding value for swine of cassava and sweet potato waste after the starch had been extracted therefrom.

(38) Demonstrated the possibilities of economically compounding balanced rations from Hawaiian-grown feeds for feeding work mules, dairy cattle, and swine.

(39) Introduced Japan rices, especially the varieties Shenriki and Onachi, which now surpass all other varieties in Hawaii.

(40) Introduced to general field culture and developed improved strains for green-manuring, forage, and seed crops, Jack beans, the Improved Valencia peanut, Brabham and Taylor cowpeas, Brazilian velvet bean; Biloxi and other varieties of soy beans, and lesser leguminous crops, all of which have been developed into pure line strains of exceptional stability.

(41) Developed by crossing and selection two standard types of yellow dent corn, varieties named New Era 90-day and New Era 125-day. Also introduced and established several other varieties of corn, among the best of which is New Era Bantam Flint for poultry.

(42) Demonstrated the possibilities of growing suitable varieties of string beans and Lima beans for canning purposes.

(43) Demonstrated the disastrous results to pineapples of planting on land plowed when wet.

(44) Demonstrated the importance and possibilities of selection within the pineapple variety Smooth Cayenne.

(45) Developed and introduced into field culture pure strains of heavy seeding, early maturing pigeon peas (Cajanus indicus). Present Hawaii production average 10,000 acres. Principal uses, pasturage and green manuring.

(46) Introduction of pigeon peas and Uba (Japanese) cane as perennial field forage crops for soiling and pasturage, for growing separately or in combination.

(47) Demonstrated the possibilities of seed growing of tropical and semi-tropical field crops on a commercial scale, now an established industry as regards pigeon pea seed.

Note: See Annual Reports 1914- 1921 for accounts of activities mentioned on above pages.

CHEMISTRY ACCOMPLISHMENTS.

(Hawaii Agricultural Experiment Station, Honolulu, T. H.)

(71) Analyzed and put on exhibition 824 representative Hawaiian soil samples which constitute a basis for a projected soil survey of the Hawaiian Islands. (Sta. Bul. 40).

(72) Published a comprehensive literature on Hawaiian soils, including a total of 12 bulletins dealing with the chemical, physical, and biological phenomena of the soils (Ann. Rpts. 1911, 1912, 1915; Sta. Buls. 30, 31, 33, 35, 37, 38, 39, and 40; Press Bul. 29).

(73) Proved that the excessive amount of manganese in some Hawaiian soils is the cause of pineapple yellows. (Sta. Bul. 26, 28; also Press Bul. 23 and 29).

(74) Discovered and developed the iron sulphate spraying treatment for manganese-induced "pineapple yellows." This has made possible the growing of pineapples on what is now one of the richest pineapple areas in the world. (Sta. Bul. 52, Press Bul. 51).

(75) Determined the chemical composition of the important Hawaiian fruits and nuts. (Ann. Rpt. 1914, Sta. Buls. 49, 51).

(76) Conducted fertilizer studies with cotton, sisal, rubber, pineapples, rice, sugar cane, and taro. (Sta. Bul. 21, 24, Press Buls. 35, 37; Ann. Rpts. 1910, 1912, 1921).

(77) Conducted cooperative fertilizer experiments with pineapples, sugar cane, pigeon peas, and bananas. (Ann. Rpt. 1912).

(78) Investigated the characteristics of Hawaiian honeys and showed in what respects they differ from mainland-produced honeys. (Sta. Bul. 17).

(79) Developed methods for home and commercial drying of Hawaiian fruits and vegetables. (Ann. Rpts. 1918, Ext. Bul. No. 7).

(80) Aided in the establishment of a commercial starch industry and advocated the edible canna as a promising commercial source of starch. (Sta. Bul. 54)

(81) Established the principles of successful jelly making from Hawaiian fruits. (Sta. Bul. No. 47).

Chemical Projects Under Way in 1923.

(82) Conducting cooperative fertilizer experiments with bananas, pineapples, upland sugar cane, edible canna. (Sta. Project No. 39-B-D-H.)

(83) Assisting in the commercial development of the manufacture of Island-grown starch, chiefly the edible canna. (Sta. Project No. 39-H).

(84) Studying the effect of brackish irrigation water on Hawaiian crops and soils. (Sta. Project No. 39-L).

(85) Determining the mineral and nutritive constituents of Hawaiian vegetables as compared to those grown on the mainland. (Sta. Project No. 39-K).

(86) Aiding in the commercial development of the Hawaiian jelly industry.

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